

Knowledge and Awareness Regarding Seasonal Flu among a Sample of Paramedical Staff in Holy Karbala City/ Iraq

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Abstract

A cross sectional study was carried out in Holy Karbala City/Iraq during the period from the 2st of January 2015 to the end of April to assess knowledge and awareness among a sample of paramedical staff regarding seasonal flu. The results of demographic data of the studied sample showed that there was a distinct males preponderance with mean \pm SD of their ages was (35.21 \pm 10.09) years, the age range at the time of study was between (21-62) years, (male : female ratio was 1.3:1), more than half of the sample selected (57.4%) were males, (42.76%) falls in the age group of (20-29) years, and more than half were (54.51%) had Health Technical institute, (73.76%) from sample were married, and more than three quarter of sample (76.15%) were resident in urban and about half of the sample (51.96%) were worked in hospitals. The study provided There is Significant association has been found between level of education and their knowledge. No significant association has been found between (age groups, Gender, marital status, residence and working institute) of paramedical staff and their knowledge. Present study concluded that the knowledge and awareness by paramedical staff in holy Karbala city regarding seasonal flu had good and acceptable score. The study recommendation by important dependent general programmes for health education additional training as intensive courses for short periods about the disease, mode of transmission and prevention measures with all available methods for all paramedical staff and other health staff.

Introduction

Influenza is an important public health problem and it causes significant morbidity and mortality, especially in the elderly and greatest risk groups [1]. There are three types of influenza virus: A, B and C. Influenza A and influenza B are responsible for most clinical illness and cause annual epidemics worldwide leading to a substantial morbidity and mortality. [2]. Influenza C virus infection causes respiratory illness that is generally milder than that caused by influenza A and B virus infections [3]. Annually, seasonal influenza infections occur in epidemics worldwide and are rated to cause (3 - 5 million) cases of serious illnesses and (250,000 - 500,000) deaths. [2] The last pandemic occurred early in April 2009, after several patients infected with novel H1N1 swine-origin influenza virus A (S-OIV A) were identified in the United States and Mexico. Through rapid and frequent international travel, the virus has disseminated around the world. More than 17,700 deaths have been documented up to April 4, 2010, in the world and the World Health Organization (WHO) Regional Office for the Eastern Mediterranean (EMRO) has documented over one thousand deaths [4]. Pandemic influenza typically is caused by the emergence of a virulent new strain of type A influenza virus to which most people don't have immunity. This allows it to cause a global outbreak of serious illness [5]. An important starting point in designing proper prevention tools is to know how much educated people aware about H1N1 Infection [6]. Healthcare workers (HCWs) comprise a primary reservoir for transmission of influenza into patients. [3]. Influenza virus Transmission from patients to HCWs, HCWs to patients and among HCWs has been well reported. [7].

The objective of this study to assess the knowledge and awareness of paramedical staff concerning seasonal flu virus infection.

Methods

A cross-sectional study was carried out for a period of four months from the 2st of January 2015 to the end of April 2015. The study was performed to determine Knowledge and awareness regarding Seasonal Flu Among a sample of Paramedical Staff in Holy Karbala City, were chosen by multistage simple random sampling technique. 587 studied sample were obtained by direct interview with the paramedical staff by using detailed self-reporting questionnaire form, The scale of the three levels was rated on the 3 points (likert respondent scale) it was scored as A scoring of agreed about by assigning a score of (3) for the right answer (yes), (2) for the wrong answer (no). and score (1) for the incomplete answer (don't know).

Number of questions: 57 (Minimum=57, Maximum=171, Medium=114)

The medium was calculated for each question and those score below the medium (score <126) consider poor score, while (score \geq 126) good and acceptable score.

The computer facility was used for storage and analysis descriptive statistics including the use of

frequencies , percentages.

The Chi-Square statistical test was used to test for associations between variables with the results being considered as statistically significant when the p value was (≤ 0.05). SPSS statistical package version 20 was used for data description and analysis.

Results

Table (1): shows the distribution of the paramedical staff according to age groups and gender there was a distinct males preponderance with mean \pm SD of their ages was (35.21 \pm 10.09) years, the age range at the time of study was between (21-62) years , (male : female ratio was 1.3:1) and the highest percentage (42.76%) were in the age group (20-29) years and the lowest percentage (7.16) were in the age group (age \geq 50) years and the association was found to be statistically significant (P = 0.001).

Table (1): Distribution of Studied Sample according to Age groups and Gender.

Age groups	GENDER				Total	
	males		females		N0	%
	N0	%	N0	%		
20-29	117	34.72	134	53.60	251	42.76
30-39	101	29.97	78	31.20	179	30.49
40-49	79	23.44	36	14.40	115	19.59
\geq 50	40	11.87	2	0.8	42	7.16
Total	337	100	250	100	587	100
$\chi^2= 42.607$ $df = 2$ $p.v= 0.001$						

Table (2): shows the distribution of the paramedical staff regarding educational level high percentage (54.51%) from Medical Institute,(26.41%) from Secondary school , while regarding marital status and residency most cases (73.76%) were married and (76.15%) from Urban area ,while regarding place health institute of the study about half of studied sample (51.96%) were worked in Hospital.

Table (2):Distribution of Studied Sample according to Education level , Marital status, Residence and Health institute.

No.	VARIABLES	Total		
		N0	%	
1	EDUCATION LEVEL	Secondary school	155	26.41
		Medical Institute	320	54.51
		College and above	112	19.08
		Total	587	100
2	MARITAL STATUS	Single	154	26.24
		married	433	73.76
		Total	587	100
3	RESIDENCE	Rural	140	23.85
		Urban	447	76.15
		Total	587	100
4	HEALTH INSTITUTE	Primary health care center	282	48.04
		Hospital	305	51.96
		Total	587	100

Table (3): Regarding Seasonal flu is transmission from Human to Human all of studied sample (100%) sample answered correctly, while more than (94 %) answered correctly about (the viruses as an etiology of seasonal flu infection, Seasonal flu is Infectious disease and Seasonal flu is transmission easily), while (62.69%) and (56.56%) of studied sample answered correctly about (Seasonal flu as a dangerous disease and Pandemic

Flu (H1N1) is type of Seasonal Flu) respectively, while (38.33%) of studied sample considered Pandemic Flu is occur rarely while Seasonal Flu is occur annually, and (35.60%) of studied sample considered Sore throat is not commonly present with H1N1 while (19.08%) of studied sample considered H1N1 has a rapid onset symptoms within 3-6 hours, while (16.87%) of studied sample considered Sneezing is not common with H1N1.

Table (3): Distribution of studied sample according to their knowledge about epidemiological factors association with seasonal flu.

No.	VARIABLES	ANSERS	N0	%
1	Seasonal flu is caused by virus?	YES	570	97.11
		NO	9	1.53
		DON'T KNOW	8	1.36
		TOTAL	587	100
2	Infectious disease	YES	577	98.30
		NO	2	0.34
		DON'T KNOW	8	1.36
		TOTAL	587	100
3	Dangerous disease ?	YES	368	62.69
		NO	28	4.77
		DON'T KNOW	191	32.54
		TOTAL	587	100
4	Transmission easily ?	YES	557	94.89
		NO	10	1.70
		DON'T KNOW	20	3.41
		TOTAL	587	100
5	person to person Transmission	YES	587	100.00
		NO	0	0.00
		DON'T KNOW	0	0.00
		TOTAL	587	100
6	Transmission from animal to Human	YES	388	66.10
		NO	101	17.20
		DON'T KNOW	98	16.70
		TOTAL	587	100
7	Pandemic Flu (H1N1) is type of Seasonal Flu	YES	332	56.56
		NO	120	20.44
		DON'T KNOW	135	23.00
		TOTAL	587	100
8	Pandemic Flu is occur rarely while Seasonal Flu is occur annually	YES	225	38.33
		NO	180	30.66
		DON'T KNOW	182	31.01
		TOTAL	587	100
9	H1N1 has a rapid onset symptoms within 3-6 hours	YES	112	19.08
		NO	185	31.52
		DON'T KNOW	290	49.40
		TOTAL	587	100
10	Sneezing is not common with H1N1	YES	99	16.87
		NO	203	34.58
		DON'T KNOW	285	48.55
		TOTAL	587	100
11	Sore throat is not commonly present with H1N1	YES	209	35.60
		NO	221	37.65
		DON'T KNOW	157	26.75
		TOTAL	587	100

Table (4): Regarding mode of transmission of seasonal flu , the majority (96.93%) of paramedical staff considered the cough or sneeze as the main Mode of transmission, while more than (70%) for (face-to-face talk and hand shaking) and (62.69%) for indirect hand contact .

Table (4): Distribution of studied sample according to their knowledge about the Mode of transmission of seasonal flu.

Mode of transmission		N0	%	
1	Cough or sneeze	YES	569	96.93
		NO	8	1.36
		DON'T KNOW	10	1.71
		TOTAL	587	100
2	Face-to-face talk	YES	469	79.90
		NO	68	11.58
		DON'T KNOW	50	8.52
		TOTAL	587	100
3	Hand shaking or embracement	YES	421	71.72
		NO	60	10.22
		DON'T KNOW	106	18.06
		TOTAL	587	100
4	Indirect hand contact	YES	368	62.69
		NO	105	17.89
		DON'T KNOW	114	19.42
		TOTAL	587	100

Table (5): Regarding the knowledge of paramedical staff about the Signs and Symptoms of seasonal flu, Fever came in the 1st order and answered correctly by the majority (95.57%) of paramedical staff , followed by Headache (90.46%) , Rhinorrhea (91.82%), Cough (84.33%) and lower percentage for other symptoms .

Table (5):Distribution of studied sample according to their knowledge about the Mode of transmission of seasonal flu.

Signs and Symptoms		ANSERS	N0	%
1	Fever	YES	561	95.57
		NO	12	2.04
		DON'T KNOW	14	2.39
		TOTAL	587	100
2	Headache	YES	531	90.46
		NO	38	6.47
		DON'T KNOW	18	3.07
		TOTAL	587	100
3	Cough	YES	495	84.32
		NO	48	8.18
		DON'T KNOW	44	7.50
		TOTAL	587	100
4	Rhinorrhea	YES	539	91.82
		NO	34	5.79
		DON'T KNOW	14	2.39
		TOTAL	587	100
5	Sore throat	YES	493	83.99
		NO	48	8.17
		DON'T KNOW	46	7.84
		TOTAL	587	100
6	Mylagia	YES	456	77.68
		NO	56	9.54
		DON'T KNOW	75	12.78
		TOTAL	587	100
7	Loss of appetite	YES	444	75.64
		NO	72	12.26
		DON'T KNOW	71	12.10
		TOTAL	587	100
8	Abdominal discomfort	YES	233	39.69
		NO	158	26.92
		DON'T KNOW	196	33.39
		TOTAL	587	100
9	Nausea	YES	363	61.84
		NO	76	12.95
		DON'T KNOW	148	25.21
		TOTAL	587	100
10	Vomiting	YES	274	46.68
		NO	100	17.04
		DON'T KNOW	213	36.28
		TOTAL	587	100
11	Diarrhea	YES	148	25.21
		NO	156	26.58
		DON'T KNOW	283	48.21
		TOTAL	587	100
12	Prostration	YES	327	55.71
		NO	132	22.49
		DON'T KNOW	128	21.80
		TOTAL	587	100

Table (6): Regarding a Complication of seasonal flu the highest percentage more than (70%) of

paramedical staff answered correctly about (sinusitis and Otitis Media) and lower percentage for others Complications.

Table (6): Distribution of studied sample according to their knowledge about Complication of seasonal flu

Complication		ANSERS	N0	%
1	Pneumonia	YES	376	64.05
		NO	116	19.77
		DON'T KNOW	95	16.18
		TOTAL	587	100
2	Sinusitis	YES	417	71.04
		NO	80	13.63
		DON'T KNOW	90	15.33
		TOTAL	587	100
3	Otitis Media	YES	418	71.21
		NO	83	14.14
		DON'T KNOW	86	14.65
		TOTAL	587	100
4	Myositis	YES	112	19.08
		NO	185	31.52
		DON'T KNOW	290	49.40
		TOTAL	587	100
5	Encephalitis	YES	99	16.87
		NO	203	34.58
		DON'T KNOW	285	48.55
		TOTAL	587	100
6	Complications of pregnancy and birth.	YES	209	35.60
		NO	221	37.65
		DON'T KNOW	157	26.75
		TOTAL	587	100
7	Low birth weight for infected pregnant	YES	140	23.85
		NO	259	44.12
		DON'T KNOW	188	32.03
		TOTAL	587	100
8	Death	YES	214	36.46
		NO	180	30.66
		DON'T KNOW	193	32.88
		TOTAL	587	100

Table (7): Regarding the knowledge of paramedical staff about the Risk groups of seasonal flu , more than (80%) of studied sample answered correctly for (People in crowding place, Healthcare workers and Children under 5 years) ,while (67.97%) for Elderly (above 65 years) and less than (60%) studied sample answered correctly for (people with chronic disease and pregnant women).

Table (7): Distribution of studied sample according to their knowledge about the Risk groups of seasonal flu.

Risk groups		ANSERS	N0	%
1	Children (under 5 years)	YES	475	80.92
		NO	79	13.46
		DON'T KNOW	33	5.62
		TOTAL	587	100
2	Pregnant women	YES	332	56.56
		NO	135	23.00
		DON'T KNOW	120	20.44
		TOTAL	587	100
3	People with chronic disease	YES	346	58.94
		NO	129	21.98
		DON'T KNOW	112	19.08
		TOTAL	587	100
4	Elderly (above 65 years)	YES	399	67.97
		NO	103	17.55
		DON'T KNOW	85	14.48
		TOTAL	587	100
5	Healthcare workers	YES	476	81.09
		NO	60	10.22
		DON'T KNOW	51	8.69
		TOTAL	587	100
6	People in crowding place	YES	510	86.88
		NO	30	5.11
		DON'T KNOW	47	8.01
		TOTAL	587	100

Table (8): Regarding the knowledge of paramedical staff about Prevention measures regarding Seasonal Flu (vaccine), approximately (90%) of studied sample answered correctly for (Seasonal Flu Vaccine is available in Iraq, Two Types of influenza and the inactivated Seasonal Flu Vaccine given by intramuscular injection), while about (80%) of studied sample answered correctly for (Seasonal Flu Vaccine is efficacious, seasonal flu vaccination reduces the possibility of seasonal flu virus transfer from Healthcare workers to patients, seasonal flu vaccination reduces the risk of seasonal flu virus transfer from Healthcare workers to their family members and contraindicated vaccination is severe allergic reaction to chicken, egg proteins, or other components of the vaccines), Half (50.43%) of studied sample answered correctly about The nasal-spray influenza vaccine is not recommended during pregnancy and for Duration of immunity is one year only (46.68%) of studied sample answered correctly.

Table (8):Distribution of studied sample according to their knowledge about Prevention measures regarding Seasonal Flu (vaccine).

Prevention measures regarding Seasonal Flu (vaccine)		ANSERS	N0	%
1	Seasonal Flu Vaccine is available in Iraq ?	YES	527	89.78
		NO	20	3.41
		DON'T KNOW	40	6.81
		TOTAL	587	100
2	Two Types of influenza Flu Vaccines are available for prevention of influenza ?	YES	549	93.53
		NO	12	2.04
		DON'T KNOW	26	4.43
		TOTAL	587	100
3	The inactivated Seasonal Flu Vaccine given by intramuscular injection?	YES	529	90.12
		NO	36	6.13
		DON'T KNOW	22	3.75
		TOTAL	587	100
4	Seasonal Flu Vaccine is efficacious	YES	473	80.57
		NO	46	7.85
		DON'T KNOW	68	11.58
		TOTAL	587	100
5	Influenza immunization should be annual	YES	274	46.68
		NO	101	17.20
		DON'T KNOW	212	36.12
		TOTAL	587	100
6	Seasonal flu vaccination reduces the possibility of seasonal flu virus transfer from Healthcare workers to patients.	YES	471	80.24
		NO	52	8.86
		DON'T KNOW	64	10.90
		TOTAL	587	100
7	Seasonal flu vaccination reduces the risk of seasonal flu virus transfer from Healthcare workers to their family members	YES	473	80.58
		NO	48	8.18
		DON'T KNOW	66	11.24
		TOTAL	587	100
8	Contraindicated vaccination is severe allergic reaction to chicken, egg proteins, or other components of the vaccines?	YES	495	84.33
		NO	48	8.17
		DON'T KNOW	44	7.50
		TOTAL	587	100
9	The nasal-spray influenza vaccine is not recommended during pregnancy?	YES	296	50.43
		NO	8	1.36
		DON'T KNOW	283	48.21
		TOTAL	587	100

Table (9): Regarding the knowledge of paramedical staff about Prevention measures regarding Seasonal Flu (Personal prevention), More than (90%) of studied sample considered (hand washing , wearing mask and using disposable soft tissue) is important as Personal prevention of seasonal flu and the majority (89.44%) answer correctly for avoid crowding places.

Table (9): Distribution of studied sample according to their knowledge about Prevention measures regarding Seasonal Flu(Personal prevention).

Prevention measures regarding Seasonal Flu (Personal prevention)		ANSERS	N0	%
1	Hand washing	YES	555	94.55
		NO	16	2.72
		DON'T KNOW	16	2.73
		TOTAL	587	100
2	Wearing mask	YES	541	92.16
		NO	24	4.09
		DON'T KNOW	22	3.75
		TOTAL	587	100
3	Covering the nose and mouth during sneezing and coughing	YES	538	91.65
		NO	24	4.09
		DON'T KNOW	25	4.26
		TOTAL	587	100
4	Avoid crowding places	YES	525	89.44
		NO	22	3.75
		DON'T KNOW	40	6.81
		TOTAL	587	100

Table (10): Regarding the knowledge of paramedical staff about the Control measures of Seasonal Flu, the majority (91.82%) of studied sample considered the Using doctors prescribed medication Is important as Control measures of seasonal flu, while approximately (85%) of studied sample considered (the Using over the counter medication and Home based remedies) is important as Control measures of seasonal flu , while (70.70%)of studied sample considered the isolation is important as Control measures of seasonal flu.

Table (10): Distribution of studied sample according to their knowledge about Control measures of seasonal flu.

Control measures		ANSERS	N0	%
1	Using over the counter medication	YES	499	85.01
		NO	30	5.11
		DON'T KNOW	58	9.88
		TOTAL	587	100
2	Using doctors prescribed medication	YES	539	91.82
		NO	16	2.73
		DON'T KNOW	32	5.45
		TOTAL	587	100
3	Home based remedies	YES	496	84.50
		NO	32	5.45
		DON'T KNOW	59	10.05
		TOTAL	587	100
4	Isolation	YES	415	70.70
		NO	57	9.71
		DON'T KNOW	115	19.59
		TOTAL	587	100

Table (11): Each member of studied sample might have more than one answer, The table shows the main source of information that health worker for (93.85%) of studied sample, while(87.39%) , (85.86%) and (79.39%) for (Internet, posters and Satellite channels) respectively ,while approximately (73%) for (local TV channel for , booklets and Friends), while approximately (66%) for (newspaper, workshops and Family members) and School curriculum for (59.97%) of studied sample .

Table (11): Distribution of studied sample according to their knowledge about the sources of information of seasonal flu .

No.	Sources of information	YES		NO		TOTAL	
		N0	%	N0	%	N0	%
1	Health workers	551	93.87	36	6.13	587	100
2	Internet	513	87.39	74	12.61	587	100
3	Posters	504	85.86	83	14.14	587	100
4	Satellite channels	466	79.39	121	20.61	587	100
5	Local TV channels	435	74.11	152	25.89	587	100
6	Booklets	429	73.08	158	26.92	587	100
7	Friends	426	72.57	161	27.43	587	100
8	Newspapers	394	67.12	193	32.88	587	100
9	Workshops	388	66.10	199	33.90	587	100
10	Family members	382	65.08	205	34.92	587	100
11	School curriculum	352	59.97	235	40.03	587	100

Table (12) :The results of this table showed that the majority (84 %) of studied sample had good and acceptable knowledge score toward seasonal flu ,while only (16%) had poor score.

Table (12) :Distribution of studied sample according to knowledge score about seasonal flu .

Knowledge score	N0	%
poor (score < 126)	96	16
good & acceptable (score \geq 126)	491	84
Total	587	100

Discussion

Epidemiological factors association with seasonal flu.

In the present study it is clear that viruses as an etiology of seasonal flu infection the majority of paramedical staff correct responses regarding the causative virus (97.11%) , This is similar to other reported study in India by Puri et.al.,2011 (90%)[8]. the majority (98.30%) of them believed that Seasonal flu is Infectious disease , our opinion about this result may be due to (previous exposure) each member of studied sample infected by contact with diseased either patient or their families or they are communicable the disease to other, (62.69%) of studied sample considered Seasonal flu as a dangerous disease ,This is similar to other reported study in KSA by Rehmani et.al., 2010 (82.3%) [9]. And by Bali et.al.,2012 in India (66.45%) [10]. this result is differ from other reported by Khazaeipour et.al., 2010 in Iran (43.2%) [11], this difference may be due to what is compliance who infected by influenza ,The most common complications are bacterial ,which may happen anywhere along the respiratory tract ,including otitis media, sinusitis, and secondary bacterial pneumonia [3], the majority (94.89%) of studied sample answered correctly about transmission easily of Seasonal flu, all of studied sample considered Seasonal flu is transmission from Human to Human. this result may be due to A person with the flu is contagious for more than a week after first develops singe and symptoms ,influenza is transmitted from person to person via respiratory secretions [1,12].

Similar result had been found in Iraq, neighboring and others countries, by Thabit 2011 in Iraq (97.6 %) [13], This was in compare to the findings of Aslan et. al., (2010) in Turkey, which found that (65%) of health care workers knew that the infection was transmitted from human being to an other's [14]. Similarly, Fatiregun et. al., 2011 in Nigeria so as report that (51.6%) of health care providers knew that the infection was transmitted from one person to another [15]. This result could be associated with each man infected with influenza can spread mainly the disease to person through coughing or sneezing [16]. while (56.56%) of studied sample considered Pandemic Flu (H1N1) is type of Seasonal Flu, this result may be due to It was initially called Mexican Flu. Later, the name was tainted to swine influenza (swine flu) when studies showed that the virus contains genes that were parallel to those of the viruses in North America that cause influenza among pigs [17]. while (38.33%) of studied sample considered Pandemic Flu is occur rarely while Seasonal Flu is occur annually ,this result may be due to believed of studied sample all types of influenza occur similarly, while (19.08%) of studied sample considered H1N1 has a rapid onset symptoms within (3 - 6)hours, this result may be due to Pandemic influenza A (H1N1) showed more critical illness among young people [18]. while (16.87%) of studied sample considered Sneezing is not common with H1N1, this result may be due to The common clinical features with H1N1are (fever, common cold and cough with muscle ache) . These symptoms are similar to seasonal flu but due to havoc created by (H1N1) flu every case of fever with cough and cold is being considered as (H1N1) flu by general public [19]. and (35.60%) of studied sample considered Sore throat is not commonly

present with H1N1, this result may be due to expected that the (H1N1) will to continue to circulate as a seasonal virus, and sporadic cases and local outbreaks will continue to occur, depending upon the immunity level of the community [20].

Mode of transmission of seasonal flu

If not people have essential knowledge about the modes of transmission, they respond properly during an outbreak [21]. the risk of receiving infected would increase when an infected individual coughed or sneezed in close distance, This may be due to the influenza as respiratory infectious disease. In the present study the majority (96.93%), (79.90%), (71.72%) and (62.69%) of paramedical staff answers correctly as mode of transmission of seasonal flu about (cough or sneeze , face-to-face talk , handing shaking or embracement and indirect hand contact) respectively.

This result is similar to other reported studies in Iraq and other country by Thabit 2011 in Iraq(97.6%) regarding cough or sneeze as mode of transmission[13], by Lin *et.al.*, 2011 in Chine(61.9%) for face-to-face talk [22]. While this result is differ from other reported study in Chine by Lin *et.al.*, 2011 for (26.8%) and(22.3%) about (handing shaking or embracement and indirect hand contact) [22]. This result may be due to expected that the combined efforts of national and international health authorities in training health care workers and informing and educating the general population would have led to a better understanding of seasonal flu .

Signs and Symptoms of seasonal flu

In the present study, regarding the knowledge of paramedical staff about the Signs and Symptoms of seasonal flu, Fever came in the 1st order and answered correctly by the majority (95.57%) of paramedical staff , This is similar to other reported study in Turkey by Aslan *et.al.*, 2010 (83.9%) [14].this result is logically because the fever is combination with each infection and its consider indicator for body health , while the majority (90.46%) considered Headache as a Symptom of seasonal flu This is different to other reported study in Turkey by Aslan *et.al.*, 2010 (46.2%) [14]. while the majority (84.33%) of studied sample considered the Cough is a Signe of seasonal flu, similar results were found by Thabit 2011in Iraq (97.6%) [13] and other reported study in neighboring country in Turkey by Aslan *et.al.*, 2010(57.2%) [14]. this result because cough is specific Signe to influenza while the majority (91.82%) considered Rhinorrhea is a Signe of seasonal flu This is different to other reported study in Turkey by Aslan *et.al.*, 2010 (34.4%) [14]. this result may be due to The disease is characterized by the sudden onset of fever, chills, headache, myalgia and extreme fatigue, Other common symptoms involve a dry cough, sore throat and stuffy nose [6]. while the majority (83.99%) of paramedical staff considered the Sore throat is Signe of seasonal flu This is different to other reported study in Turkey by Aslan *et.al.*, 2010 (48.9%) [14].this result is acceptable , while the highest (77.68%) of paramedical staff considered the Mylagi is a symptom of seasonal flu ,This is similar to other reported study in Turkey by Aslan *et.al.*, 2010 (61.6%) [14]. while the highest (75.64%) of paramedical staff considered the Loss of appetite is a symptom of seasonal flu, while the highest (39.69%) considered the Abdominal discomfort is a symptom of seasonal flu this result may be due to Abdominal discomfort is rare a symptom of seasonal flu and it is a specific symptom for Gastrointestinal tract and influenza Sometimes cause gastrointestinal (GI) symptoms [16], while the highest (61.84%) of studied sample considered the Nausea is a symptom of seasonal flu This is different to other reported study in Turkey by Aslan *et.al.*, 2010 (31.9%) [14], this result may be due to Nausea is rare a symptom of seasonal flu because it is a specific symptom for Gastrointestinal tract, while the highest (46.68%) of studied sample considered the Vomiting is a singe of seasonal flu , This result is similar to other reported study in Turkey by Aslan *et.al.*, 2010 (52.0%) [14].this result may be due to Conjunctival injection, vomiting ,abdominal pain and diarrhea is less commonly observed rare a symptom of seasonal flu because it is a specific symptom for Gastrointestinal tract [3], while the highest (25.21%) of studied sample considered the Diarrhea is a singe of seasonal flu, This is similar to other reported study in Turkey by Aslan *et.al.*, 2010 (27.8%) [14].this result is different from were found in Iraq by Thabit 2011(91.2%) believed in that [13]. this difference may be due to Diarrhea is rare symptom of seasonal flu and it is a specific singe for Gastrointestinal tract and there are many causes for diarrhea , and more than half (55.71%) of studied sample considered the Prostration is a symptom of seasonal flu. This indicates that the knowledge of the paramedical staff toward singes and symptoms of seasonal flu is good and acceptable in the present than other studies [13]. this result may be due to influenza sometimes causes vomiting and diarrhea, approximately (50%) will not develop the typical symptoms described above [23]. For else healthy individuals, influenza is an unpleasant, however commonly self-limiting disease with recovery usually by (2-7) days [6].

Complication of seasonal flu

Regarding a Complication of seasonal flu the highest (71.21%),(71.04%) and (64.05%) of paramedical staff answered correctly about (Otitis Media , Sinusitis and Pneumonia) respectively, and lower percentage (19.08%) , (16.87%) , (35.60%), (23.85%) and (36.46%) about (Myositis , Encephalitis, Complications of pregnancy and

birth, Low birth weight and Death) respectively , These results were lower than what is found believed in death by Thabit 2011 in Iraq (91.2%) [13] , Wong et.al., in Malaysia in 2010 (73.8%) [24] and Johanna et.al., in South Africa 2015(97.9%) [25].

This result may be due to The illness perhaps complicated within bronchitis, secondary bacterial pneumonia, or in children, otitis media, Influenza can be complicated more unusually within meningitis, encephalitis or meningoencephalitis and death . The risk of serious illness from influenza is higher amongst children less than (6 months) of age [6]. and this difference may be due to lack awareness of studied sample about the number of deaths from the disease globally during 2009 was 238 and cases had been reported throughout Iraq was 475[13].

Risk group for seasonal flu

Knowledge of paramedical staffs Regarding Risk groups which include (Children, pregnant women, people with chronic disease , Elderly, Healthcare workers, People in crowding place) higher percentages of studied answered correctly.

This result is similar to other reported study by Askarian et.al., in Iran 2013 [26]. this results is differ from other reported studies in other parts of world by Bali, 2012 in India [10], Johanna et. al., in South Africa 2015 [25] and Khazaeipour et.al., 2010 in Iran [11], this difference may be due to current study conducted in the season of influenza and after awareness and vaccination campaigns for health care worker and The risk of serious illness from influenza is higher amongst children less than six months of age, underlying health conditions such as immunosuppression and pregnant women [6], [27]. severe disease being most likely to occur among persons with underlying chronic illnesses, making influenza prevention an important public health goal [28]. mainly severe illness and deaths occur in the high-risk populations of infants, the elderly and chronically ill patients [11] this is categories had immunocompromised individuals that made up in the risk groups for seasonal flu, Persons working in the medical providing (health care workers) [29] because this category direct contact with patient and may be due to the seasonal flu is respiratory tract infection and spread by close contact (such as an institution) [30].

Prevention measures regarding vaccine of Seasonal Flu

Annually , the encumbrance of seasonal flu is considerable. Vaccination coverage for non and high risk target groups is however not sufficient although efficiency of flu vaccination is evidently demonstrated. To increase vaccination uptake, it is indispensable to increase insight to the vaccination uptake among different risk groups and to deal with the drivers and barriers to vaccination, in the population[2]. vaccination is an efficient measure to prevent infectious disease [31], enchantingly, healthcare workers do not only interest the vaccination as a protection for their patients, but in the first reason as a protection for themselves [32]. Regarding the knowledge of paramedical staff about Prevention measures regarding Seasonal Flu (vaccine) , the majority (89.78 %) of studied sample answered correctly for Seasonal Flu Vaccine is available this result is similar to what had been reported by Cadeddu et.al., 2011 in Italia (94.8%) [36], and Bali, 2012 in India (80.5%) [10] and by Khazaeipour et.al., 2010 in Iran (66.9%) [11].and this results is differ from Thabit 2011 in Iraq (19%) [13], this difference may be due to training about novel influenza and implementation of infection control measures for all paramedical staff, while the majority (93.53%) of studied sample answered correctly about Two types of influenza, this result may be due to seasonal influenza vaccination was initiated at the early phase of the H1N1 epidemic expansion in the world , for the inactivated Seasonal Flu Vaccine given by intramuscular injection by (90.12%) of studied sample believed that this result may be due to all paramedical staff participants shared the campaign of seasonal flu awareness and seasonal flu vaccination was directed at others and the vaccine available in Iraq is the inactivated Seasonal Flu Vaccine and given to people by intramuscular injection, for Seasonal Flu Vaccine is efficacious by (80.58%) of studied sample answered correctly this result is similar than what is found by Alshammara et. al., in Saudi Arabia 2014 (71.43%) [33], Johanna et. al., in South Africa2015(68.1%)[25] and Khazaeipour et.al., 2010 in Iran (51.4%) [11], this result may be due to Vaccine recipients are generally informed that vaccination is (70–90%) effective against influenza [34], Individuals who have vaccination or preexisting immunity from previous natural infections may have milder symptoms[3] and the reduce of seasonal flu infection in the population and particularly (health care worker) and different immunity level of the community [35], Should receive vaccine annually (Duration of immunity is one year only) (46.68%) of studied sample answered correctly this results is different from were found by Rehmani et.al., in KSA 2010 (97.4%) [9] , Alshammara et. al., in Saudi Arabia 2014 (80%) [33], and Johanna et. al., in South Africa 2015(93.5%) [25] , this difference according to expected that the influenza will to continue to circulate as a seasonal virus, and sporadic cases and local outbreaks will continue to occur, depending upon the immunity level of the community [35], while the majority (80.24%) of studied sample answered correctly about seasonal flu vaccination reduces the possibility of seasonal flu virus transfer from Healthcare workers to patients this result according to Health care personnel should be immunized annually to minimize absenteeism and transmission of seasonal influenza

from Health care personnel to patients [30]. while the majority (80.58%) of studied sample answered correctly about seasonal flu vaccination reduces the risk of seasonal flu virus transfer from Healthcare workers to their family members, this result according Annual a key measure in the prevention of nosocomial transmission it is vaccination of HCWs, Although vaccination of HCWs is effective in reducing influenza infection rates, but febrile respiratory illness work as absenteeism and patient mortality [4]. while the majority (84.33%) of studied sample answered correctly about contraindicated vaccination is severe allergic reaction to chicken, egg proteins, or other components of the vaccines this result as awareness focused as precaution when the medical and health staff given the vaccine to recipient , and half (50.43%) of studied sample answered correctly about The nasal-spray influenza vaccine is not recommended during pregnancy. this result may be due to this type of vaccine don't available in our country .

Prevention measures regarding Seasonal Flu (Personal prevention)

Regarding the knowledge of paramedical staff about Prevention measures regarding Seasonal Flu(Personal prevention) the main score of Prevention measures was excellent more than (90%) for about (washing hands , wearing mask, using disposable soft tissue and avoid crowding places), Similarly (97.6%) of the nurses indicated they washed hands frequently and used personal protective equipments like masks or apron. This result agreement with Subitha et.al., 2012 in India[20] , by Cadeddu et.al., 2011 in Italia [36], by Aslan et.al., in Turkey 2010 (65.9%),(56.9%) for washing hands , wearing mask respectively [14] and Lin et.al., 2011 in Chine (56.9%) for washing hands [22].this result may be due to perceived susceptibility is expected to begin the process of adoption of preventive behaviors, health authorities and media stress to the public particular health employment to continuously adopt precautionary measures to prevent infection even if the number of reported deaths decreases [24].

Control measures of Seasonal Flu

Regarding the knowledge of paramedical staff about the Control measures of Seasonal Flu had good and acceptable level, This result is similar to other reported study in Turkey by Aslan et.al., 2010 found (64.9%) about (Using over the counter medication) and (70.6%) about isolation are important as Control measures of seasonal flu [14], this is result may be due to Approximately (10- 50) % of children younger than 5 years of age develop viral bronchopneumonia within symptoms that are typically mild and resolve without treatment [3]. the thinking of studied sample about that may be due to the seasonal flu is respiratory disease and transmission via unprotected coughs and sneezes, and from hand to mucous membranes.[30].

Source of information of seasonal flu infection

In current study, each member of studied sample might have more than one answer ,different sources of information about influenza may be due to availability of sources and personality liking it .

Knowledge score about all types of Source of information about seasonal flu infection were good and acceptable , Internet were the main source of information of studied sample from other sources, similar results found by Kamate et.al., 2009 in India (81.3) [37] and by Coulibaly et.al., 2009 in Cote d ' Ivoire (53.1%) [38], One of the reasons for the relative access of knowledge could be the rather high rate of internet access which to the participants knowledge is one of the best channels to get timely information, , for (67.12%) of studied sample for newspaper this result is disagree with result by Coulibaly et.al., 2009 in Cote d ' Ivoire (49.5%) [38] ,this difference may be due to other countries dependent on other sources of information .

knowledge score about seasonal flu

The majority (84 %) of studied sample had good and acceptable knowledge score toward seasonal flu . this result is similar to other reported studies in Iraq and others neighboring and world countries, by Ameer 2012 in Iraq (70%) [39], and by Al-Sayyad et.al., in Saudi Arabia, 2014, was found The overall participant's knowledge about Influenza A (H1N1) virus, mode of transmission and preventive measures to be excellent [40]. And by Zairina et. al., in Tampin Negeri Sembilan ,2011 (60.2%) respondents had "adequate knowledge" [41] , by Province et. al., in Thailand, 2014 (60%) [42] ,and by Yap et. al., in Singapore 2010 (69.6%) Health care workers had "good knowledge" [43] .and differ from others reported study in the world, by Aslan et.al., in Turkey,2010 (22.98%) [14] and Fatiregun et. al., 2011 in Nigeria, who found that poor knowledge of studied sample regarding seasonal flu [15]. this difference may be due to Iraqi Ministry of Health since the beginning of 2009 updated the pandemic Influenza preparedness strategies and the operational plans of action were developed and this can be attributed to the immediate training program given to the medical and paramedical staff as well as the mass media campaign which is important in pandemic situations to avoid its spread and complications [21].

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